



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,953	03/13/2006	Frank Seidel	011235.56373US	5625
23911 7590 01/08/2010 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
BURKHART, ELIZABETH A				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
01/08/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,953

Applicant(s)

SEIDEL, FRANK

Examiner

Elizabeth Burkhart

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-30, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 28-30, 33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 18-30, 33, and 34 are pending in the application. Amended claims 28 and 29 and cancelled claims 31 and 32 have been noted. Claims 28-30, 33, and 34 have been withdrawn from consideration as being drawn to a nonelected invention. The amendment filed 9/21/2009 has been entered and carefully considered.

Election/Restrictions

2. This application contains claims 28-30, 33, and 34 drawn to an invention nonelected with traverse in the reply filed on 5/22/2009. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 18-22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Punola et al ('013).

Punola teaches a method for CVD coating of workpieces (gas turbine engine blades), in particular for aluminizing, comprising: arranging the workpieces **45** to be coated in a coating room, arranging coating granules (Al-Cr particulates) near the workpieces in receptacles **B1, B2**, heating the coating room with heater **12** to a process temperature together with the workpieces and together with the coating granules,

introducing a process gas (AlCl_3 /carrier) onto the coating granules after reaching the process temperature to generate the coating gas (AlCl , AlCl_2), and forming a coating on the workpiece with the coating gas. The workpieces **45** are positioned in several levels arranged one above the other in the coating room and wherein coating granules are arranged in receptacle **B2** directly beneath the workpieces in each level. The process gas is introduced to each level (Fig. 2, Col. 14, line 23, Col. 1, line 57, Col. 6, lines 1-25). The process parameters are kept constant while workpiece is being coated since Punola discloses a specific deposition temperature and that a vacuum pump maintains streams **S1**, **S2** at desired flow rates (Col. 5, lines 9-15).

Thus, Punola discloses every limitation of claims 18-22 and 24 and anticipates the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 23, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Punola et al ('013) as applied above in view of Hayman et al ('042) and Jenkin (GB 1070396).

Punola does not teach pulsing a process pressure during the holding time by lowering the process pressure by withdrawing the coating gas and then generating a second coating gas.

Hayman discloses a process for producing diffusion coatings on turbine blades comprising enclosing the turbine blade in a chamber with a particulate (Al, Cr, etc) and halide activator and cyclically varying the pressure of an inert or reducing gas or mixture of said gases within the chamber while maintaining the contents of the chamber at a sufficient temperature to form a diffusion coating (Abstract, Col. 2, lines 15-34). The pressure is varied by lowering the process pressure by exhausting the chamber and repeating the cycle by then introducing the inert or reducing gas to the chamber to restore the pressure (Ex. 1). The turbine may be suspended over a tray containing the particulate (Col. 4, lines 43-45). This method is particularly applicable to coating interior spaces in turbine components.

Jenkin discloses that a uniform coating may be deposited on interior surfaces (bores, holes, cavities, etc.) and external surfaces of a substrate simultaneously by subjecting the coating gas to pulsating pressure conditions in which the gas pressure is alternately and repetitively reduced and increased (p. 1, lines 55-80).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to pulse the process pressure in the process of Punola by

withdrawing the coating gas (exhausting chamber) to lower the pressure and then introducing the reducing gas to increase the pressure as suggested by Hayman in order to deposit uniform coatings on interior surfaces of the turbine components as well as exterior surfaces as suggested by Jenkin.

Regarding Claim 23, Hayman discloses generating a vacuum by pumping out the chamber before introducing the process gas into the coating room (Ex. 1) and Punola is capable of such since it discloses a coating room having a vacuum pump attached thereto (Col. 3, lines 9-15).

Regarding Claim 25, by introducing the reducing gas (process gas) of Punola into the chamber to increase the pressure during the pulsing cycles a second coating gas would be generated due to the reducing gas passing over the granules (Al-Cr particulate).

Thus, claims 23 and 25-27 would have been obvious within the meaning of 35 USC 103 over the combined teachings of Punola, Hayman, and Jenkin.

Response to Arguments

5. Applicant's arguments filed 9/21/2009 have been fully considered but they are not persuasive. Applicant argues that Punola does not disclose that a process gas is introduced onto the Al-Cr particles to generate the coating gas because Punola is merely using the particles to convert the process gas to a different form. The examiner disagrees. Punola discloses that the process gas (i.e. AlCl₃/carrier) is introduced onto coating granules (Al-Cr particulates) to generate a coating gas (i.e. AlCl₂, AlCl) (Col. 6, lines 1-25). The limitations "process gas" and "coating gas" are not defined within the

instant specification and giving the limitations the broadest reasonable interpretation, the gas generated after passing the AlCl_3 /carrier gas mixture over the Al-Cr particulates would be a "coating gas" since it is this gas (i.e. AlCl_2 , AlCl) that is used to coat the workpiece (See Punola, Col. 6, lines 20-25). Further, the dictionary defines "generate" as "to originate by a vital, chemical, or physical process" (Merriam-Webster, see attached entry). Punola discloses that the coating gas (i.e. AlCl_2 , AlCl) is originated by a chemical process (i.e. reducing AlCl_3) and thus meets the limitation of "to generate the coating gas."

Applicant argues that Punola is generating the AlCl_3 coating gas in metal halide generators 20, 22" and thus even if Punola discloses Al-Cr particles arranged near the workpiece, a process gas is not introduced onto these Al-Cr particles to generate the coating gas. The examiner disagrees. Claim 18 of the instant invention discloses that the coating gas is used to coat the workpieces. Thus, the "coating gas" in Punola is the aluminum subchloride gas (AlCl_2 , AlCl) that is generated by introducing the process gas (AlCl_3 /carrier) to the coating granules (Al-Cr particulates) since it is being used to coat the workpieces (Punola, Col. 6, lines 20-25).

Applicant argues that the Al-Cr particulates cannot be interpreted as the claimed "coating granules" because these particles do not generate the coating gas. The examiner disagrees. As discussed above, the aluminum subchloride gas (AlCl_2 , AlCl) of Punola meets the limitation of a "coating gas" since it is the gas being used to coat the workpieces (Col. 6, lines 1-25) and the Al-Cr particulates are used to generate this gas

by reducing $AlCl_3$ /carrier gas mixture. Thus, the Al-Cr particulates are used to generate the "coating gas" and thus meet the limitation of "coating granules."

Applicant argues that Claim 28 has been amended to include the special technical feature of Claim 18, that is "introduced a process gas onto coating granules arranged near the workpiece to be coated to generate the coating gas", and because both claims include the same special technical feature, withdrawn claims 28-30, 33, and 34 should be re-entered. The examiner disagrees. As discussed above, this limitation does not constitute a special technical feature because Punola discloses that the device for generating the coating gas introduces a process gas ($AlCl_3$ /carrier) onto coating granules (Al-Cr particulates) arranged near the workpiece to be coated to generate the coating gas ($AlCl_2$, $AlCl$) (Col. 6, lines 1-25). Thus, this limitation was known in the art and does not constitute a special technical feature.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Burkhart whose telephone number is (571)272-6647. The examiner can normally be reached on M-Th 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth Burkhart/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792